Paper No. 22

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

_____

Ex parte WOLF-ANCHIM ROLAND,
KARL-HEINZ GOTTWALD,
MATTHIAS HAMACHER and
JAN-WILLEM BROUWER

_____

Appeal No. 1996-3470
Application 08/313,179

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ON BRIEF

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Before JOHN D. SMITH, GARRIS and OWENS, Administrative Patent Judges.

JOHN D. SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal pursuant to 35 U.S.C. § 134 from the final rejection of claims 1 through 3 and 5 through 20.

Claim 1 is representative and is reproduced below:

1. A process for the production of copper-containing nickel-free phosphate coatings with a copper content of 0.1 to 5% by weight and an edge length of the phosphate crystals of 0.5 to 10 µm on a metal surface selected from the group consisting of

steel, galvanized steel, alloy-galvanized steel, aluminum and aluminum alloys which comprises contacting the surface with a phosphating solution containing

a) zinc ions 0.2 to 2 g/1;

b) copper ions 0.5 to 25 mg/1;

c) phosphate ions 5 to 30 g/1 (expressed as $P_2 0_5$); and

d) at least one member selected from the group consisting of hydroxylamine salts, hydroxylamine complexes and hydroxylamine in a quantity of 500 to 5,000 ppm of hydroxylamine, based on the phosphating solution;

e) manganese ion 0.1 to 5g/1.

The references of record relied upon by the examiner are:

Kramer	4,865,653	Sep. 12, 1989
Müller et al. (Müller)	5,236,565	Aug. 17, 1993
Gehmecker et al. (Gehmecker)	5,268,041	Dec. 7, 1993

The appealed claims stand rejected under 35 U.S.C. § 103 as unpatentable over Gehmecker in view of Müller and/or Kramer.

We sustain the stated rejections essentially for the reasons advanced by the examiner in the answer. We add the following comments for emphasis.

The subject matter on appeal is directed to a process for the production of copper-containing nickel-free phosphate coatings on metal surfaces such as steel, galvanized steel, or

aluminum. The claimed process requires that the metal surface is contacted with a phosphating solution containing zinc ions; copper ions; phosphate ions; manganese ions; and importantly, at least one member selected from the group consisting of hydroxylamine salts, hydroxylamine complexes and hydroxylamine. Such a phosphating solution provides a crystalline coating on the metal surfaces containing an edge length of the phosphate crystals of from 0.5 to 10 microns. The coating produced by the process of the claimed invention is said to provide a firm lacquer adhesion and excellent corrosion protection to the metal surfaces treated.

As evidence of obviousness of the claimed invention, the examiner relies on the combined disclosures of Gehmecker, Kramer, and Müller. Similar to appellants' claimed process, Gehmecker discloses a process for the production of nickel-free phosphate coatings (column 2, lines 48-54) on steel, galvanized steel, and aluminum surfaces which phosphate coatings provide advantageous corrosion protection for the metal surfaces. Additionally, Gehmecker's phosphate coatings are advantageously used to prepare the metal surfaces for a subsequent lacquer coating. See column 4, lines 57 through 64 of the reference. Gehmecker's phosphating solution, which is substantially free of nickel, contains zinc

ions, copper ions, phosphate ions, and manganese ions, all in concentration ranges within or overlapping the respective concentration ranges of these components in appellants' phosphating solution. Compare the abstract of Gehmecker; column 2, lines 20 through 25; and the specific examples that are disclosed in columns 5 and 6 of the reference. Although appellants argue that Gehmecker does not teach or suggest the crystal structure of the coating formed by the process of the present invention, we observe that Gehmecker describes the phosphate layer formed by the prior art phosphating process as “finely crystalline.” See Gehmecker at column 4, lines 41 through 43. Moreover, in view of the substantial identity of the components of the phosphating coating baths used by Gehmecker and those claimed and the identity of the processing conditions in which the phosphated layers are applied to the metal substrates, it is reasonable to conclude that Gehmecker's “finely crystalline” phosphate layer has a crystal structure as claimed herein. Accordingly, as implicitly found by the examiner in his answer, the prior art phosphating process described in the Gehmecker patent corresponds identically to that of appellants' appealed claim 1 process with the exception of the hydroxylamine

compound component requirement for appellants' phosphating solution.

With respect to this claimed deficiency in the Gehmecker "primary reference," the examiner accurately observes that Kramer teaches the addition of hydroxylamine compounds to zinc phosphate compositions for the purpose of altering the morphology of the coating. Thus, Kramer indicates that the use of a hydroxylamine agent in a zinc phosphate-type conversion coating solution when present in sufficient quantities alters the morphology of the resulting coating from a platelet form to either a columnar and/or nodular form. See Kramer at column 3, lines 62 through 68. Moreover, Kramer points out that the columnar and nodular configurations are generally preferred for paint base applications because they enhance the adhesion of the paint to the phosphated surface. See Kramer at column 1, lines 58 through 62. Additionally, Kramer indicates the columnar and nodular coatings are also lower in coating weight which is beneficial when cathodic electropainting is to be employed. See column 1, lines 63 through 65 of Kramer. Kramer further indicates that the presence of an hydroxylamine agent increases the maximum permissible zinc to phosphate ratio to the phosphating bath which is an important advantage because it provides for an expanded

tolerance for zinc. See Kramer at column 4, lines 11 through 28. Based on these disclosures, the examiner persuasively argues that one of ordinary skill in the art would have been led to have added a hydroxylamine compound to the zinc phosphate composition of Gehmecker motivated by a reasonable expectation of success for achieving the benefits of hydroxylamine compound addition. See the examiner's answer at pages 2 and 3.

Similarly, the examiner points out that Müeller also discloses that hydroxylamine compounds may be added to zinc phosphate compositions. As the examiner accurately points out, Müeller at column 2, lines 65 to column 3, line 1, indicates that in a preferred embodiment of the disclosed invention, a metal work piece may be contacted by dipping it into a phosphating solution containing hydroxylamine “which accelerates the phosphating process.” In light of this disclosure in Müeller, the examiner persuasively argues that one of ordinary skill in this art would have been led to have added hydroxylamine compound to the phosphating composition of Gehmecker for the purpose of accelerating the reaction.

Appellants contend that the process of their invention provides coatings with excellent corrosion resistance in the absence of nickel ions and nitrite ions generally found in the

prior art compositions. In addition, appellants allege that they have unexpectedly discovered that the corrosion resistance of a zinc surface which has been phosphated according to the process of the present invention with a phosphate bath which is free of both nitrite and nitrate is superior to the corrosion resistance of coatings produced from the phosphating solutions containing nitrite ions as described in the prior art references. However, we observe that Gehmecker describes the phosphate coatings provided by his process as providing advantageous protection against corrosion, and we further observe that appellants have made no comparative study with respect to the corrosion resistance of coatings produced from the specific phosphating solutions utilized by Gehmecker, particularly, Gehmecker's working Example 12 which apparently contains no nitrite or nitrate ions. We also observe that Gehmecker indicates that preferred oxidizers include chlorates, bromates and peroxy compounds which oxidizers may be used alone and not necessarily in combination with nitrate or nitrite oxidizers. See Gehmecker at column 3, lines 52 through 65. Moreover, although appellants contend that comparative Example 2 in the specification (specification, pages 12 through 16) illustrates the improvement of a coating formed over that obtained by using a nickel

containing solution and a nitrite accelerator, we reiterate that appellants have made no side-by-side comparison with coatings formed by the Gehmecker process. Further, although the comparative Example 2 is said to clearly show the positive influence of a nitrite-free phosphating solution in the phosphating of a galvanized metal surface, we observe that no claim on appeal is so limited.

Appellants have specifically directed arguments to the dependent claims on appeal. However, the examiner has adequately responded to appellants' arguments regarding the subject matter defined by these claims. See the answer at page 4.

We have carefully considered all the arguments advanced by appellants in their briefs. Nevertheless, we agree with the examiner that the combined teachings of the relied upon references establish a prima facie case of obviousness that has not been rebutted by objective evidence of nonobviousness. Thus, we agree with the examiner's ultimate legal conclusion that the subject matter defined by the appealed claims would have been obvious within the meaning of 35 U.S.C. § 103.

The decision of the examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR

§ 1.136(a).

AFFIRMED

Bradley R. Garris Administrative Patent Judge	)	
John D. Smith Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
Terry J. Owens Administrative Patent Judge	)	

JDS/cam

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